

IN THE CLAIMS

We claim:

1. A computer system, comprising:
 - a computer rack;
 - a first stack and a second stack provided in the computer rack, each stack comprising one or more computers;
 - a first cooling plenum configured such that cooling air can flow between the computers in the first stack and the first cooling plenum; and
 - a second cooling plenum configured such that cooling air can flow between the computers in the second stack and the second cooling plenum.
2. The computer system of claim 1, wherein:
 - the first stack and the second stack are positioned such that an overlapping portion of the back side of the first stack faces an overlapping portion of the back of the second stack, an exposed portion of the first stack faces the first cooling plenum, and an exposed portion of the second stack faces the second cooling plenum.
3. The computer system of claim 2, further comprising:
 - a first bracket disposed between the first stack and the first cooling plenum and configured to allow cooling air to flow between the first stack and the first cooling plenum; and
 - a second bracket disposed between the second stack and the second cooling plenum and configured to allow cooling air to flow between the second stack and the second cooling plenum.
4. The computer system of claim 3, wherein the first bracket further comprises:

a fan configured to force air from more than one computer in the first stack into the first cooling plenum or configured to force air from the first cooling plenum into more than one computer in the first stack.

5. The computer system of claim 3, wherein the first bracket further comprises:

a power interface configured to couple with a power interface on one of the computers in the first stack when the computer is inserted into the computer rack.

6. The computer system of claim 5, further comprising:

a power supply disposed external to the computers in the first stack and coupled to the power interface.

7. The computer system of claim 2, wherein:

each computer in the first stack is in fluid communication with the first cooling plenum through a back side of the computer and with the second cooling plenum through a lateral side of the computer.

8. The computer system of claim 2, further comprising:

an exhaust duct coupled to the first cooling plenum for channeling cooling air from the computer rack to a location exterior to the site where the computer rack is located.

9. The computer system of claim 2, further comprising:

an air conditioning system for supplying cooling air to the computer rack.

10. A computer system, comprising:

a computer rack comprising a first region configured to retain a first stack of computers and a second region configured to retain a second stack of computers adjacent to the first stack of computers such that a first cooling plenum is in fluidic communication with computers disposed in the first stack of computers and a second cooling plenum is in fluidic communication with computers disposed in the second stack of computers.

11. The computer system of claim 10, wherein:

the computer rack comprises a first access side and a second access side opposite the first access side such that the first region and the second cooling plenum are disposed adjacent the first access side and the second region and the first cooling plenum are disposed adjacent the second access side.

12. The computer system of claim 10, wherein:

the computer rack is configured to hold the first stack of computers such that an overlapping portion of the first stack of computers faces an overlapping portion of the second stack of computers and an exposed portion of the first stack of computers faces the first cooling plenum and an exposed portion of the second stack of computers faces the second cooling plenum.

13. A method of operating a plurality of computers in a computer rack, comprising:

providing a first and a second computer in a partial back-to-back relationship in the computer rack such that an overlapping portion of the back of the first computer faces an overlapping portion of the back of the second computer;

passing cooling air through the first computer and out of an exposed portion of the back of the first computer and into a first cooling plenum or passing cooling air from the first cooling plenum into the first computer; and

passing cooling air through the second computer and out of an exposed portion of the back of the second computer and into a second cooling plenum or passing cooling air from the second cooling plenum into the second computer.

14. The method of claim 13, wherein said providing the first and second computers comprises providing a first stack of computers and a second stack of computers such that each computer in the first stack of computers has an overlapping portion facing an overlapping portion of the back of the a computer in the second stack of computers.

15. The method of claim 13, wherein:
the first cooling plenum is defined by the exposed portion of the back of the first computer, a first side of the second computer, and the computer rack; and
the second cooling plenum is defined by the exposed portion of the back of the second computer, a first side of the first computer, and the computer rack.

16. A computer system, comprising:
a support structure configured to support a first stack of computers and a second stack of computers in an offset back-to-back configuration.

17. The computer system of claim 16, further comprising:
a first stack of computers provided in the support structure; and
a second stack of computers provided in the support structure.

18. The computer system of claim 16, wherein:
the support structure comprises a computer rack and a plurality of computer chassis support brackets positioned in a central portion of the computer rack and configured to support the first stack of computers on a first side of the computer

chassis support brackets and to support the second stack of computers on a second side of the computer chassis support brackets.

19. The computer system of claim 18, wherein:

the computer chassis support brackets are further configured to support a first plurality of fans for moving air into or out of the first stack of computers and a second plurality of fans for moving air into or out of the second stack of computers.

20. The computer system of claim 18, wherein:

the computer chassis support brackets are further configured to support a first plurality of power connectors for connection with the first stack of computers and a second plurality of power connectors for connection with the second stack of computers.